US HEALTH – UNIT 1

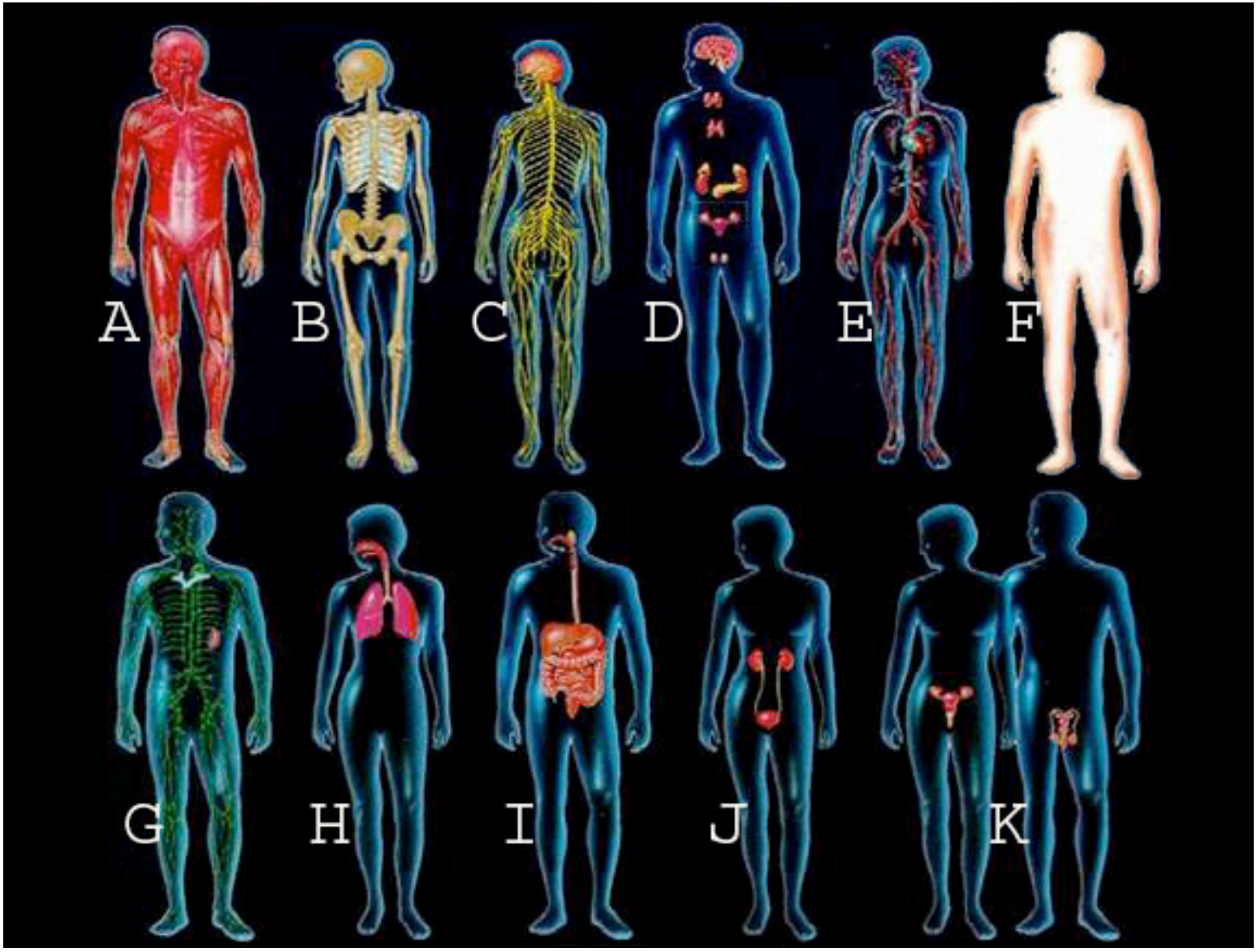
NUTRITION & EXERCISE

The Body Systems

HUMAN BODY SYSTEMS

- How many types of systems are there in the body?
- There are 11 major organ systems in the human body:

HUMAN BODY SYSTEMS

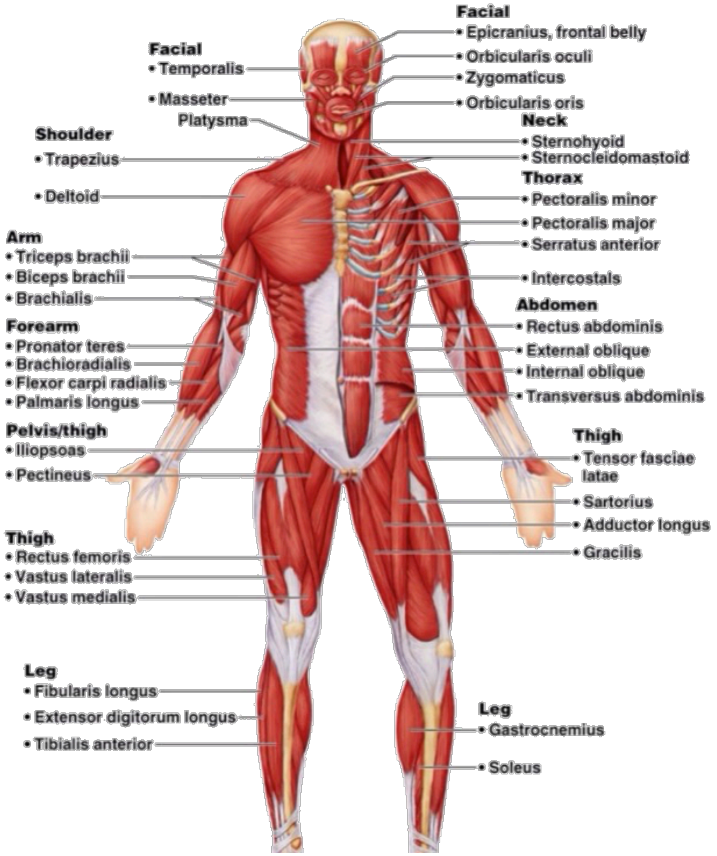


HUMAN BODY SYSTEMS

- Muscular (A)
- Skeletal (B)
- Nervous (C)
- Endocrine (D)
- Cardiovascular (E)
- Integumentary (F)
- Lymphatic (G)
- Respiratory (H)
- Digestive (I)
- Urinary (J)
- Reproductive (K)

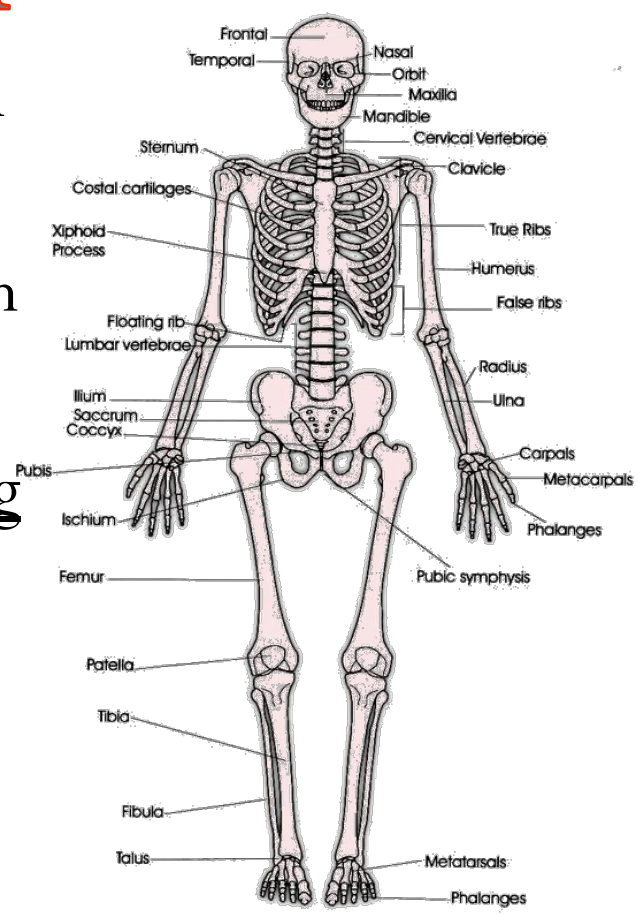
MUSCULAR SYSTEM

- Responsible for the movement of the human body.
- Attached to the bones of the skeletal system are about 700 named muscles that make up roughly half of a person's body weight.
- Each muscle is a discrete organ constructed of skeletal muscle tissue, blood vessels, tendons, and nerves.
- Muscle tissue is also found inside of the heart, digestive organs, and blood vessels.
- Muscles in organs move substances throughout the body.



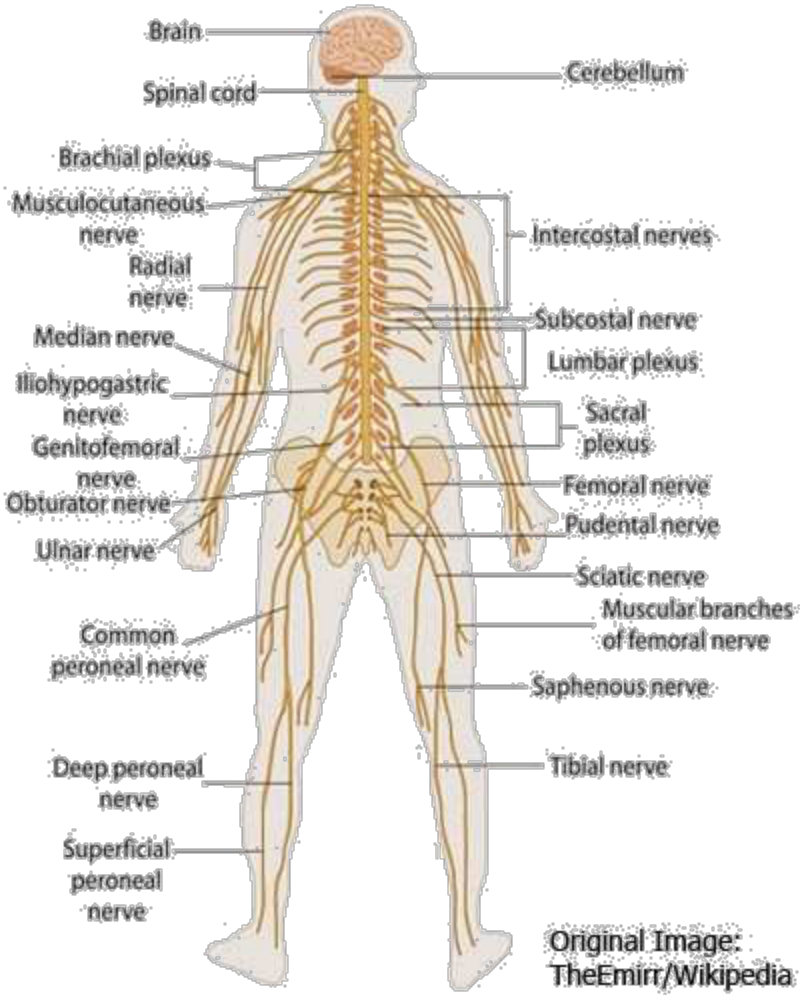
SKELETAL SYSTEM

- Includes all of the bones and joints in the body.
- Each bone is a complex living organ that is made up of many cells, protein fibers, and minerals.
- The skeleton grows throughout childhood, acts as a scaffold providing support and protection for the soft tissues that make up the rest of the body.
- Provides attachment points for muscles to allow movements at the joints. New blood cells are produced by bone marrow inside bones.
- Bones store calcium, iron, and energy in the marrow form of fat.



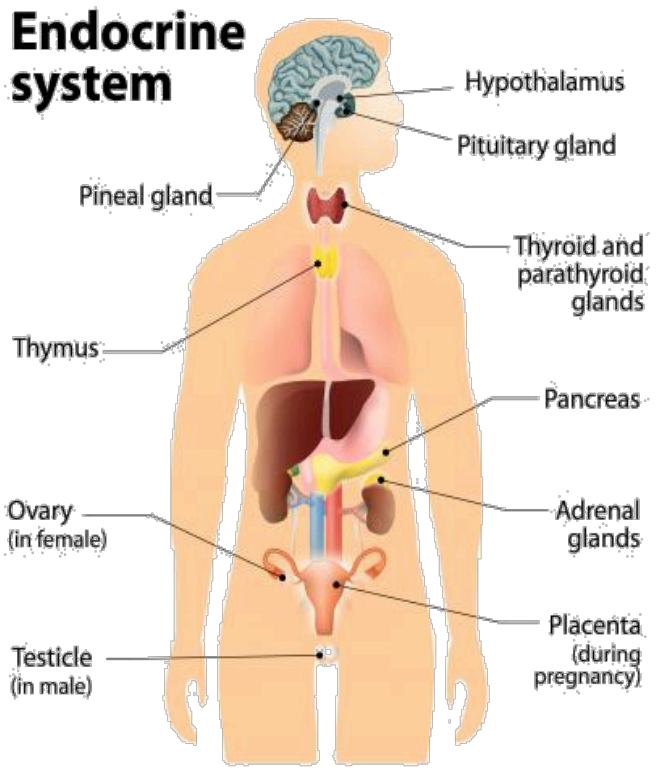
NERVOUS SYSTEM

- Consists of the brain, spinal cord, sensory organs, and all of the nerves that connect these organs with the rest of the body.
- Responsible for the control of the body and communication among its parts.
- **Central Nervous System (CNS)**:
  - Brain and spinal cord
  - Control center where information is evaluated and decisions made.
- **Peripheral Nervous System (PNS):**
  - Sensory nerves and sense organs
  - Monitor conditions inside and outside of the body and send this information to the CNS.



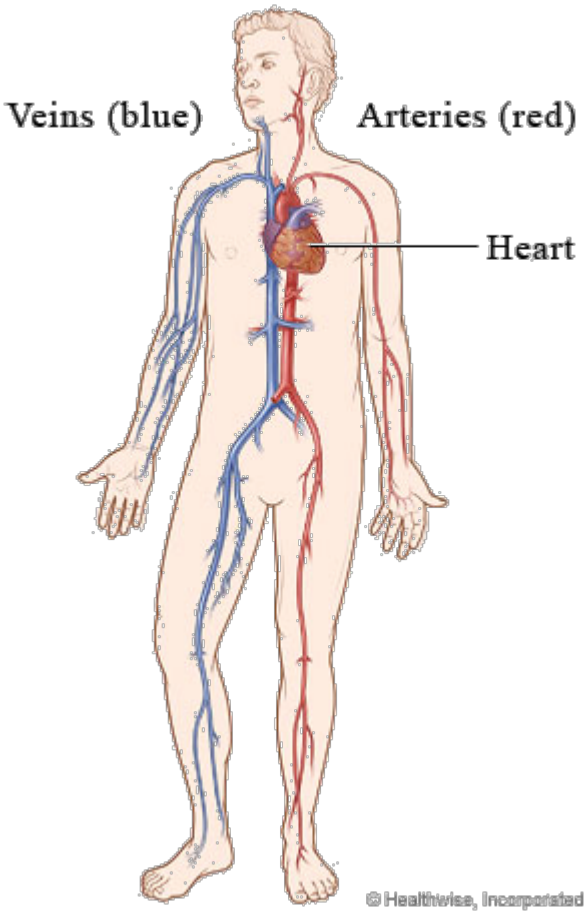
ENDOCRINE SYSTEM

- Includes all of the glands of the body and the hormones produced by those glands.
- The glands are controlled by stimulation from the nervous system as well as by chemical receptors in the blood and hormones produced by other glands.
- Regulates organs in the body, and helps maintain the body's homeostasis.
- Cellular metabolism, reproduction, sexual development, sugar and mineral homeostasis, heart rate, and digestion all regulated by the actions of hormones.



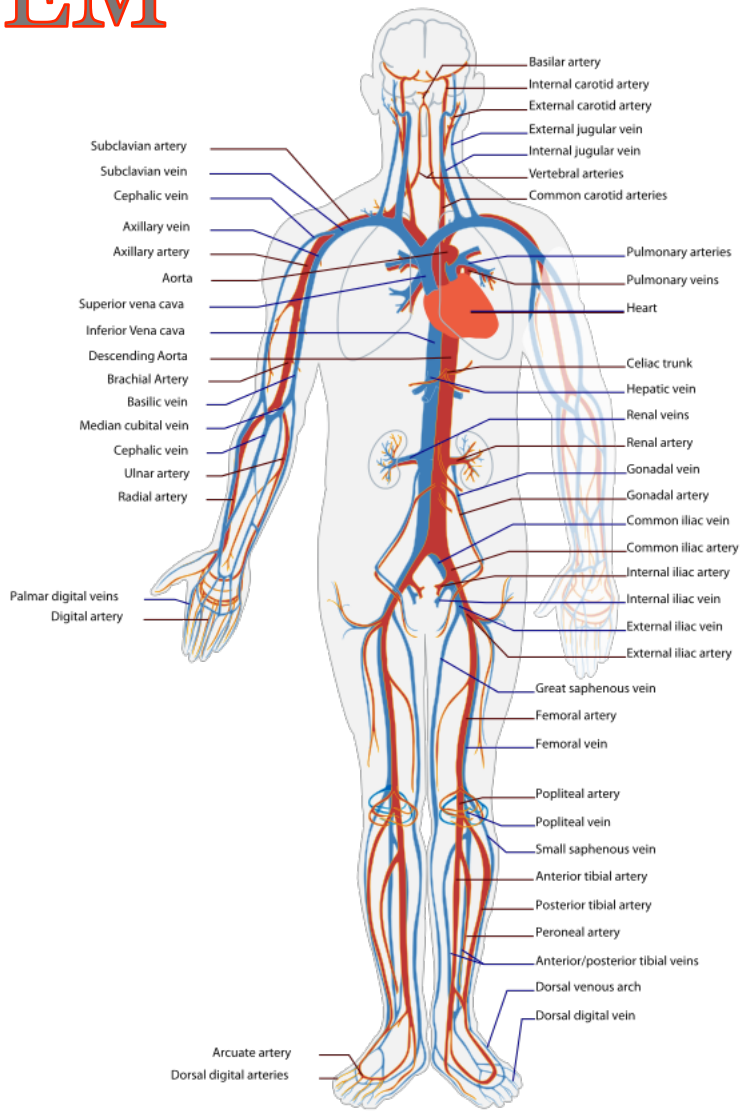
CARDIOVASCULAR SYSTEM

- Consists of the heart, blood vessels, and the approximately 5 liters of blood that the blood vessels transport.
- Responsible for transporting oxygen, nutrients, hormones, and cellular waste products throughout the body.
- Powered by the body's hardest-working organ — the heart, which is only about the size of a closed fist.
- Even at rest, the average heart easily pumps over 5 liters of blood throughout the body every minute.



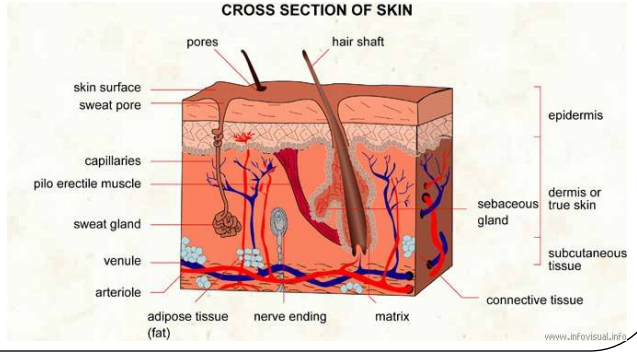
CIRCULATORY SYSTEM

- Also called the cardiovascular system or the vascular system.
- Permits blood to circulate and transport nutrients (e.g. amino acids & electrolytes)oxygen, carbon dioxide, hormones and blood cells around the body.
- Provides nourishment and helps in fighting diseases, stabilizing temperature and pH and maintain stable body conditions.



INTERGUMENTARY SYSTEM

- Consists of the skin, hair, nails, and exocrine glands.
- The skin is only a few millimeters thick yet is by far the largest organ in the body.
- The average person's skin weighs 10 pounds and has a surface area of almost 20 square feet.
- Skin forms the body's outer covering and forms a barrier to protect the body from chemicals, disease, UV light, and physical damage.
- Hair and nails extend from the skin to reinforce the skin and protect it from environmental damage.
- The exocrine glands of the integumentary system produce sweat, oil, and wax to cool, protect, and moisturize the skin's surface.



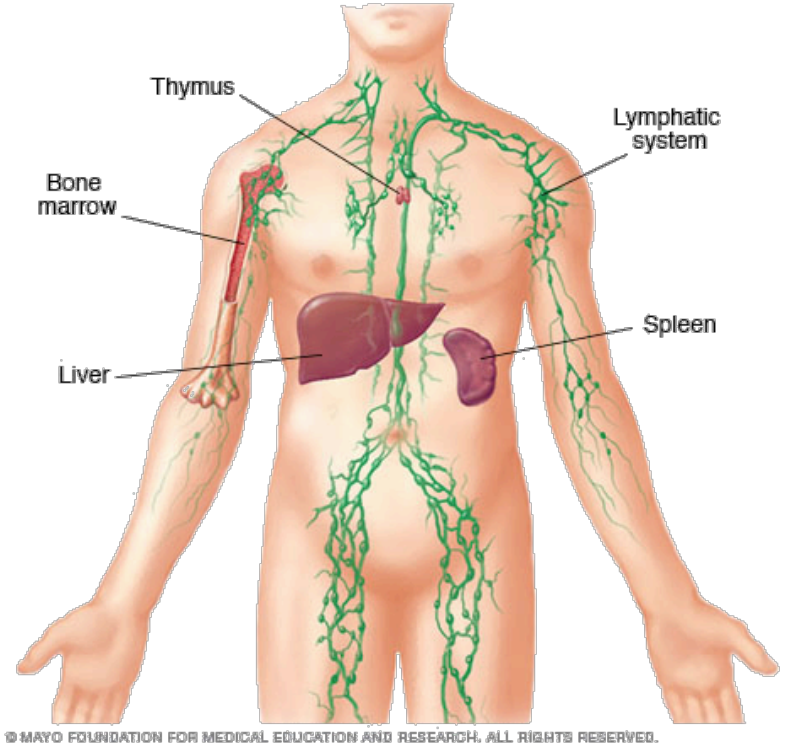
INTERGUMENTARY SYSTEM

- Here's an interesting web page for you to review.

- http://www.innerbody.com/anatomy/integumentary-male

LYMPHATIC SYSTEM

- A network of tissues and organs that help rid the body of toxins, waste and other unwanted materials.
- Transports lymph, a fluid containing infection-fighting white blood cells, throughout the body.
- Consists of lymphatic vessels, similar to the circulatory system's veins and capillaries.
- The vessels are connected to lymph nodes, where the lymph is filtered.
- Tonsils, adenoids, spleen and thymus are all part of the lymphatic system.



LYMPHATIC vs IMMUNE SYSTEM

- Two closely related organ systems that share several organs and physiological functions.
- The **immune system** is our body's defense system against infectious pathogenic viruses, bacteria, and fungi as well as parasitic animals and protists.
- The immune system works to keep these harmful agents out of the body and attacks those that manage to enter.
- The **lymphatic system** is a system of capillaries, vessels, nodes and other organs that transport a fluid called lymph from the tissues as it returns to the bloodstream.
- The lymphatic tissue of these organs filters and cleans the lymph of any debris, abnormal cells, or pathogens.
- The lymphatic system also transports fatty acids from the intestines to the circulatory system.

LYMPHATIC vs IMMUNE SYSTEM

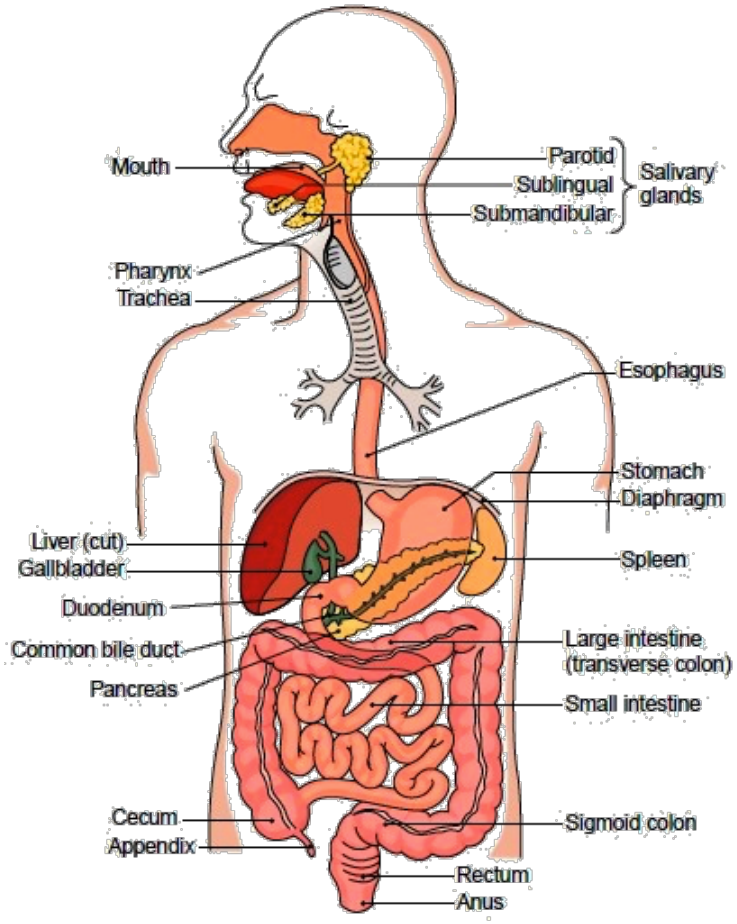
Lymphatic System	Immune System
The main functions of lymphatic systems are fluid recovery, immunity, and lipid absorption.	Provides long term immunity and defends against foreign substances by activating immune responses.
An organ system with a specific anatomy.	Immune system does not have specific anatomy
Composed of lymph nodes, lymph vessels, and other related organs	Made up of basically B and T lymphocytes.
Associated with the cardiovascular system	Mainly associated with nervous and endocrine systems
The products of the immune system are transported in the lymphatic system.	

RESPIRATORY SYSTEM

- The cells of the human body require a constant stream of oxygen to stay alive. The respiratory system provides oxygen to the body's cells while removing carbon dioxide, a waste product that can be lethal if allowed to accumulate.
- There are 3 major parts of the respiratory system:
  - **Airway** – nose, mouth, pharynx, larynx, trachea, bronchi, bronchioles, carries air between the lungs & the body's exterior
  - **Lungs** – functional units of the respiratory system by passing oxygen into the body & carbon dioxide out of the body
  - **Muscles of respiration** – includes the diaphragm & intercostal muscles, they work together to act as a pump, pushing air into & out of the lungs during breathing

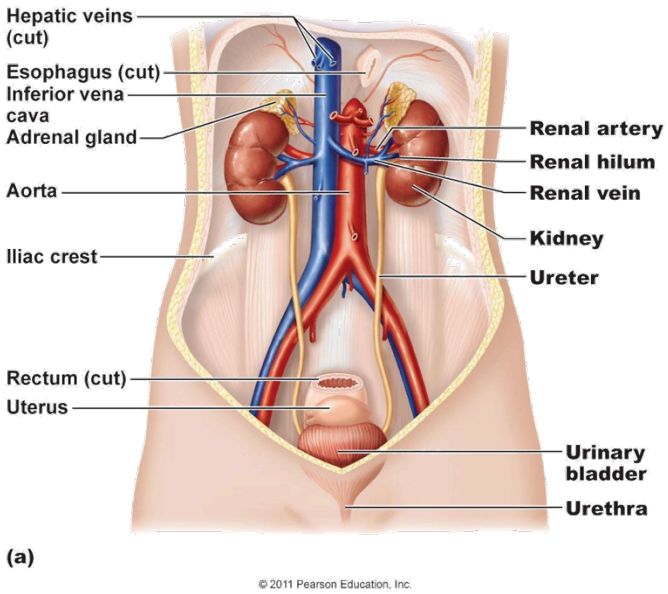
DIGESTIVE SYSTEM

- A group of organs that convert food into energy and basic nutrients to feed the entire body.
- Made up of the oral cavity, pharynx, esophagus, stomach, small intestines, and large intestines.
- Accessory organs of the digestive system include the teeth, tongue, salivary glands, liver, gallbladder, and pancreas.
- To achieve the goal of providing energy and nutrients to the body, there are six major functions that take place in the digestive system:
- Ingestion
- Secretion
- Mixing and movement
- Digestion
- Absorption
- Excretion



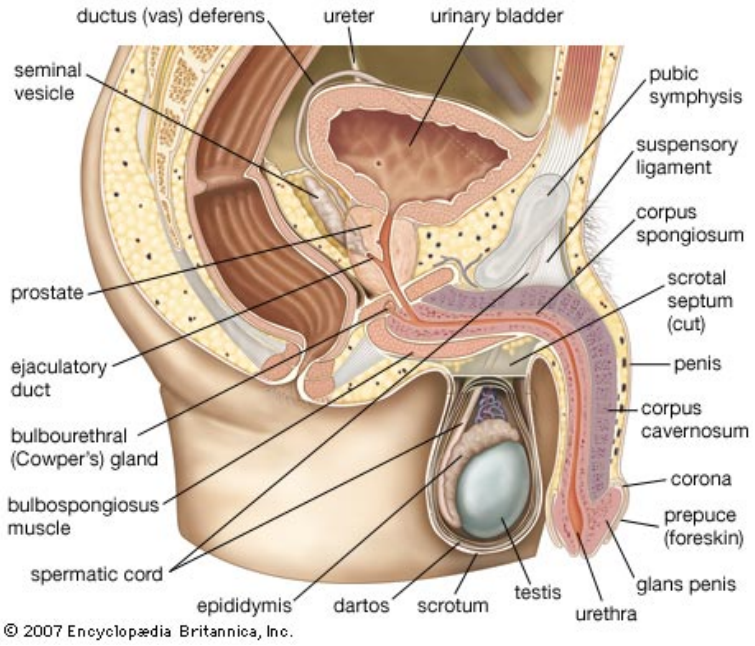
URINARY SYSTEM

- Consists of the kidneys, ureters, urinary bladder, and urethra.
- Kidneys filter the blood to remove wastes and produce urine.
- **Urinary tract consists of:**
  - Ureters
  - Urinary bladder
  - Urethra
- The urinary tract acts as a plumbing system to drain urine from the kidneys, store it, and then release it during urination.
- Besides filtering and eliminating wastes from the body, the urinary system also maintains the homeostasis of water, ions, pH, blood pressure, calcium



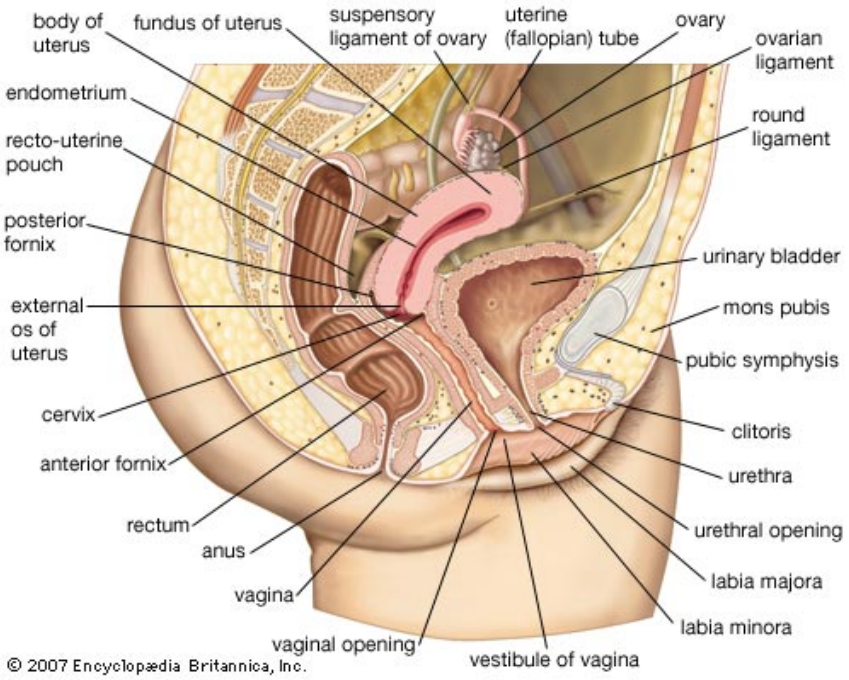
REPRODUCTIVE SYSTEM (MALE)

- Includes the scrotum, testes, spermatic ducts, sex glands, and penis.
- These organs work together to produce sperm, the male gamete, and the other components of semen.
- They also deliver semen out of the body and into the vagina where it can fertilize egg cells to produce offspring.



REPRODUCTIVE SYSTEM (FEMALE)

- Includes the ovaries, fallopian tubes, uterus, vagina, vulva, mammary glands and breasts.
- These organs are involved in the production and transportation of gametes and the production of sex hormones.
- Also facilitates the fertilization of ova by sperm and supports the development of offspring during pregnancy and infancy



Quick Quiz

- **Questions and Answers**

1. How many body cavities do we have?
   - **A.** Two
   - **B.** Three
   - **C.** Four
   - **D.** Five

2. A group of structures which function together as a unit to perform a definite job for the body
   - **A.** Organ
   - **B.** Tissue
   - **C.** Cell
   - **D.** System

3. The system that exchanges oxygen with carbon dioxide is?
   - **A.** Lymphatic
   - **B.** Digestive
   - C. Respiratory
   - D. Circulatory

4. What system serves to defend the human body?
   - **A.** Integumentary
   - **B.** Immune
   - **C.** Circulatory
   - **D.** Respiratory

Quick Quiz

5. What is the system that transports nutrients, oxygen, and wastes?
   - **A.** Circulatory
   - **B.** Lymphatic
   - **C.** Digestive
   - **D.** Respiratory

6. What is the name for chemical messengers produced by glands?
   - **A.** Hormones
   - **B.** Gonads
   - **C.** Impulses
   - **D.** None of these

7. What is the system whose main function is to provide movement?
   - **A.** Skeletal
   - **B.** Muscle
   - **C.** Endocrine
   - **D.** Nervous

Quick Quiz

8. Where does the development of a child before birth takes place?

- **A.** Ovaries
- **B.** Uterus
- **C.** Abdominal Cavity
- **D.** None of these

9. How many bones do we have in the human body?

- **A.** 206
- **B.** 216
- **C.** 226
- **D.** 198

10. The sweat glands are part of the excretory system

- **A.** True
- **B.** False


SO ... DO YOU HAVE ANY
QUESTIONS FOR ME?